

5 ABSTRACT OF THE INVENTION

A semiconductor switching device or amplifier combined in parallel with one or more active devices defined as starter devices. A starter device is used to reduce the terminal voltage of a switching device or amplifier to a dc level below about 0.4 volts which will then allow the switching device to easily change between the on or conducting state and the off or non-conducting state. Three different starter devices are utilized. The first being a Bipolar Junction Transistor (BJT), the second a Metal Oxide Silicon Field Effect Transistor (MOSFET), and the third consisting of three normally off JFETs connected serially. Generally, a single starter device is coupled across the terminals of a semiconductor switching device or amplifier, but it is possible and sometimes advantageous to couple two or more starter devices in parallel. In a first case, a symmetrical, normally off or enhancement mode JFET is used as the switch or amplifier. A starter device coupled between source and drain of the JFET will allow operation at dc voltage levels above 0.4 volts. In a second case, an asymmetrical, normally off JFET is used as the switch or amplifier. A starter device coupled between source and drain of the JFET will allow operation at dc voltage levels above 0.4 volts. In a third case, a normally off MESFET is used as the switch or amplifier. A starter device coupled between source and drain of the MESFET will allow operation at dc voltage levels above 0.4 volts.